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Report of the programme reviewer on industrial statistics

Note by the Secretary-General

The Secretary-General has the honour to transmit to the Statistical Commission the report of the Director-General for Policy Planning (Statistical Standards) of the Ministry of Internal Affairs and Communications of Japan on industrial statistics in accordance with a request by the Statistical Commission at its thirty-sixth session.[a] The Commission is requested to review the work undertaken in industrial statistics and consider the conclusions and recommendations that are summarized in paragraphs 40 to 45 below.

* E/CN.3/2006/1.
[a] *Official Records of the Economic and Social Council, 2005, Supplement No. 4* (E/2005/24), chap. I.B.

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Report of the Director-General for Policy Planning (Statistical Standards) of the Ministry of Internal Affairs and Communications of Japan on industrial statistics

Contents

		Paragraphs	Page
I.	Introduction	1–4	3
II.	Current situations and practices in international industrial statistics	5–18	3
	A. Major players and their mandates	5–6	3
	B. Activities	7–18	3
III.	Issues and challenges in international industrial statistics	19–26	6
	A. Data collection activities	20–22	6
	B. Data dissemination activities	23–24	7
	C. Harmonization of international recommendations	25–26	7
IV.	International responses to challenges and progress made	27–39	8
	A. Data collection and dissemination methods	28–34	8
	B. Harmonization of international recommendations	35–39	9
V.	Recommendations	40–45	10
	A. Recommendations for national statistical agencies	41	10
	B. Recommendations for international organizations	42–45	10

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I. Introduction

1. International recommendations on industrial statistics have been formulated by the United Nations and its international and regional partners for the purpose of establishing uniform measurements of industrial structure and change. These recommendations have resulted in useful guidelines for countries undertaking statistical inquiries and establishing a system for industrial statistics.

2. However, in recognition of the need to adequately measure the recent major shifts in national and international industrial structures of production and consumption, a programme review[1] of industrial statistics was requested by the Statistical Commission at its thirty-sixth session, in 2005.

3. The purpose of this review is (a) to examine the current situation and practices in industrial statistics; (b) to identify the issues and challenges faced by the international industrial statistical system; and (c) to formulate recommendations to improve the current coordination, data collection and dissemination practices for industrial statistics while ensuring international comparability and policy relevance.

4. The present programme review report on industrial statistics has been structured as follows. The current situation and practices are described in section II, issues and challenges in section III and responses to the challenges and progress made in section IV. Recommendations are presented in section V.

II. Current situation and practices in international industrial statistics

A. Major players and their mandates

5. The national statistical offices responsible for industrial statistics look for advice and guidance from the Statistical Commission for the development and organization of their statistical system.

6. The major international organizations operating in the area of industrial statistics are the Statistics Division of the Secretariat, the United Nations Industrial Development Organization (UNIDO), the Organization for Economic Cooperation and Development (OECD) and Eurostat. These organizations have three main functions: (a) data collection and dissemination; (b) the development of methodological standards; and (c) training and capacity-building.

B. Activities

1. Data collection and dissemination

Data collection activities

7. The Statistics Division collects index numbers of industrial production for mining and quarrying, manufacturing and electricity, gas and water industries, including quarterly data at the 2-digit level of the International Standard Industrial Classification of All Economic Activities (ISIC), Rev.3, and monthly data at the 1-digit level of ISIC, Rev.3. In addition, the Division annually collects industrial

commodity production statistics, including physical production data for 530 goods and monthly physical production data for 10 goods.

8. UNIDO has assumed responsibility for the collection of annual general industrial statistics pertaining to the mining, manufacturing and electricity, gas and water industries at the 3- and 4-digit levels of ISIC. For this purpose, UNIDO collects this annual data directly from approximately 150 countries not members of OECD, while it receives data for OECD member countries through OECD to avoid duplication of efforts. Countries are requested to report relevant data in accordance with ISIC, Rev.3, or, alternatively, with ISIC, Rev.2. The annual general industrial statistics cover the following data items: number of establishments/enterprises; number of persons engaged; number of employees by gender; wages and salaries paid to employees; output; value added; and gross fixed capital formation.

9. Following the recommendations of the Commission at its twenty-seventh session, in 1993, the international responsibility for the collection and dissemination of general industrial statistics was transferred from the Statistics Division to UNIDO and OECD in 1994. Moreover, an inter-agency agreement has been drawn up between Eurostat and OECD, whereby OECD collects data directly from countries not members of the European Union and Eurostat collects business statistics for EU countries.

Data dissemination activities

10. Quarterly and monthly index numbers of industrial production are disseminated through the *Monthly Bulletin of Statistics* with a time lag of about one quarter, while the annual index numbers of industrial production are published annually in the United Nations *Statistical Yearbook* with a time lag of one year. Annual industrial commodity production statistics are disseminated through the *Industrial Commodity Statistics Yearbook* with a time lag of about two years, while the monthly commodity production statistics are disseminated though the *Monthly Bulletin of Statistics* with a time lag of a quarter. Statistics Division publications are available in print and on CD-ROM, as is the case for commodity production statistics, or in print and online, as is the case for all statistics related to the *Monthly Bulletin of Statistics*, such as monthly commodity production statistics and monthly and quarterly index numbers of industrial production.

11. UNIDO disseminates general industrial statistics on manufacturing through its annual hard-copy publication, *The International Yearbook of Industrial Statistics*, and CD-ROM versions of the UNIDO industrial statistics database INDSTAT. The time lag between the latest reference year and publication is two years.

12. OECD disseminates the index of industrial production of the member countries through their publications, such as the monthly *Main Economic Indicators*.

2. Development of methodological standards

International recommendations and manuals by the United Nations

13. The United Nations has formulated international guidelines, from time to time, with the objective of establishing uniform patterns of measurement of economic activities. In the area of industrial statistics, recommendations were first formulated in 1953 and revised in 1960, 1968 and 1983. These recommendations have proven

to be useful in providing guidance to countries conducting economic enquiries to meet data requirements for national planning and policy purposes.

14. The United Nations publications on industrial statistics, such as *Index Numbers of Industrial Production* and *International Recommendation for Industrial Statistics*, have not been revised since 1950 and 1983, respectively. However, since 2004, the revisions of these manuals became part of the Statistics Division economic statistics programme and their revisions are scheduled to be published in 2008.

Recommendations and manuals by other international organizations

15. Other international organizations have undertaken similar revisions of their recommendations on industrial statistics. Eurostat, for instance, prepared a manual entitled "Methodology of short-term business statistics: interpretation and guidelines", published in 2002. OECD also developed several new manuals, such as "Measuring productivity — OECD manual — Measurement of aggregate and industry-level productivity growth" in 2001 and "OECD handbook on economic globalization indicators" in 2005.

Summary of main recommendations and manuals

16. A summary of the latest recommendations and manuals on industrial statistics that have been published by international organizations is presented in the table below.

Main recommendations and manuals on industrial statistics

Organization	*Recommendations/manuals/handbooks*	*Date of issue*
Statistics Division	Index numbers of industrial production	1950
	International recommendations in basic industrial statistics	1960
	International recommendations for industrial statistics	1983
	List of selected products and materials	2005
	Recommendations for the 1983 World Programme of Industrial Statistics	1981
	Strategies for measuring industrial structure and growth	1994
Eurostat	Methodology of short-term business statistics: interpretation and guidelines	2002
OECD	Measuring productivity — OECD manual — Measurement of aggregate and industry-level productivity growth	2001
	Measuring capital: measurement of capital stocks, consumption of fixed capital and capital services	2001
	Measuring the non-observed economy — a handbook	2002
	OECD handbook on economic globalization indicators	2005
	A framework for biotechnology statistics	2005

3. Training and capacity-building

17. The Statistics Division does not provide any training or technical assistance in countries. In contrast, UNIDO implements three or four technical cooperation projects in a typical year in developing countries and countries with economies in transition. These projects assist national statistical offices in strengthening institutional capacities in industrial statistics such as the implementation of annual establishment surveys covering aspects of business registers, sampling, survey design, data editing and processing, statistical analysis and dissemination. The duration of such projects ranges from one to two years. Moreover, United Nations regional commissions, such as the Economic and Social Commission for Asia and the Pacific, conduct workshops related to industrial statistics.

18. Eurostat organizes special training courses in structural business statistics and business registers when requested by member countries. The organization also undertakes several programmes supporting new member States, European Union candidate countries and western Balkan and former Soviet Union countries and technical support programmes in other countries.

III. Issues and challenges in international industrial statistics

19. Various issues and challenges have been identified that affect the availability of timely and internationally comparable statistics on industrial structure and change. The following categories have been identified and presented in this section: (a) data collection activities; (b) data dissemination activities; and (c) the harmonization of international recommendations.

A. Data collection activities

20. Data collection activities require considerable financial and human resources. However, many countries lack the resource base necessary to conduct regular industrial enquiries on short-term indicators and structural business statistics, which limits the number of countries reporting industrial statistics to international agencies. This critical resource situation is equally applicable to international organizations, which are forced to decide between competing elements of their work programmes.

21. Recently, privacy consciousness has been rapidly rising and there have been related changes in the social environment, even in the business sector. However, current international recommendations and manuals do not include guidelines on how to deal with the decreasing response rate that is due to the increasing number of respondents refusing to be surveyed. It is thus difficult, especially in developed countries, to collect data from respondents in conducting surveys for industrial statistics, which target establishments and enterprises. Collecting data from small-sized and unincorporated enterprises is particularly difficult.

22. The emergence of high-technology industries, national and international outsourcing of production, the rapid appearance, disappearance and changing quality of industrial products, the creation of large, complex multinational conglomerates and the environmental impact of industry, among other issues, have

added to the statistical challenges of data collection and analysis. Again, current manuals and handbooks lack guidelines to address these emerging challenges and issues.

B. Data dissemination activities

23. The international comparability of databases maintained by international organizations is hampered because different revisions/versions and levels of classification are applied. For example, for general industrial statistics, UNIDO collects data at the 4-digit level of ISIC, Rev.3, or the 4-digit level of ISIC, Rev.2. Similarly, different OECD directorates manage different databases at different levels of ISIC, Rev.3.

24. The review has shown that international organizations maintain their own industrial statistics database systems, which are not immediately compatible. Therefore, international organizations should be encouraged to develop common platforms, if not unified database structures, and features enabling users to carry out international analyses and comparisons. For instance, at UNIDO, three databases on industrial statistics in the INDSTAT series are maintained. Likewise, at OECD, the Statistics Directorate maintains its own industrial databases on structural statistics for industry and services and statistics by economic size-class. Moreover, other directorates at OECD also maintain related databases. For example, the Directorate for Science, Technology and Industry maintains databases on structural analysis; activities of foreign affiliates in manufacturing; and foreign affiliates and trade in services.

C. Harmonization of international recommendations

25. The existence of separate recommendations and manuals on the same subject by several international organizations points to the fact that data reported by countries to these organizations may differ in their scope and approach. Therefore, international organizations should be encouraged to develop joint research programmes to harmonize international recommendations.

26. In this context, it should be noted that international, regional and national statistical agencies should be encouraged to prepare and maintain detailed correspondence tables for the various existing and future revisions of classifications of economic activities. These correspondence tables are essential for ensuring compatibility between the different detailed structure levels of ISIC of, among others, the United Nations, the General Industrial Classification of Economic Activities within the European Communities (NACE) of Eurostat, the North American Industry Classification System (NAICS) of the United States of America, Canada and Mexico and the Australian and New Zealand Standard Industrial Classification (ANZSIC).

IV. International responses to challenges and progress made

27. Countries and international organizations are reporting progress in meeting challenges. In this section, the responses to and progress made in meeting challenges are described for (a) data collection and dissemination methods and (b) the harmonization of international recommendations.

A. Data collection and dissemination methods

1. Data collection methods

28. The improved maintenance of business registers and increased use of administrative data go a long way in reducing the response burden, improving the response rate of economic enquiries and minimizing the resources required for data collection. Best practices are increasingly emerging from experiences in countries with advanced statistical systems.

29. Some countries, mainly developed countries make use of the Internet in conducting industrial surveys more efficiently. Efforts are being made to create the conditions needed to extract enterprise data directly from the respondents' internal accounting systems. International organizations have begun the process of extracting data directly from countries' database systems through the Statistical Data and Metadata Exchange (SDMX). OECD, for example, directly downloads the requisite industrial statistics via the Internet from databases maintained by countries.

30. With the globalization of economy, industrial production processes are increasingly being outsourced internationally. Therefore, international methodology must be developed to adequately capture this phenomenon. The Statistics Division and its international partners are addressing economic globalization with regards to the recording of goods sent abroad for processing, merchanting and other issues in the update of the 1993 System of National Accounts (SNA) due to be published in 2008. Meanwhile, OECD has developed indices on globalization, which has led to the publication of the "OECD handbook on economic globalization indicators" in 2005. Furthermore, a Eurostat working group has been created to investigate the feasibility of creating a multinational enterprise group register.

31. Existing standards on industrial statistics have addressed industrial activities in terms of the creation of economic value added. However, the revision of the standards on industrial statistics and economic activities in general should acknowledge the link between the economy and the environment by measuring the impact of the economy on the environment through emissions, depletions and degradations resulting from industrial production processes.

32. National statistical offices are confronted with challenges in incorporating changes in the quality of products when compiling their indexes of industrial production. Theoretical guidance has been provided in the International Monetary Fund Producer Price Index manual, to be published under the aegis of the Intersecretariat Working Group on Price Statistics, and will be further addressed in the OECD handbook on hedonic price indices, to be published in 2006. However,

countries are increasingly looking for practical compilation guidance in order to address this issue while taking best practices into account.

2. Data dissemination methods

33. UNIDO is in the process of shifting its INDSTAT database series and industrial statistics database to a client/server platform. This ongoing exercise, including the improvement of the metadata system, will enable flexible data retrieval. In addition, OECD is consolidating its main databases into a single common structured query language-based data warehouse, OECD.STAT, a project that is expected to be completed in 2006.

34. However, even with these improved database systems, the international comparability of databases will remain limited unless the harmonization of concepts, definitions, classifications and other methodological elements is pursued according to common international standards by the international statistical community.

B. Harmonization of international recommendations

1. Efforts by the United Nations for revising international recommendations

35. The Statistics Division held an expert group meeting on industrial statistics in September 2005, with the objective of reviewing the proposed amendments to current international recommendations for industrial statistics.

36. The expert group meeting endorsed the view that the revision on industrial statistics should be undertaken within a broad economic statistics programme. More specifically, the data collection strategy for industrial statistics should be based on an integrated approach covering, in principle, all economic activities across all class sizes of production units.

37. The Statistics Division, in collaboration with the National Bureau of Statistics of China, organized the International Workshop on Economic Census in Beijing in July 2005. The workshop reviewed the economic census of China conducted in 2002 and provided an opportunity for countries to exchange experiences in several key areas relating to economic census. The workshop also had meaningful discussions about the subject of building an integrated economic statistics programme. The workshop recognized that some countries, such as the United States conduct an economic census periodically while other countries, such as Canada, have developed integrated survey programmes to cover the entire domestic economy annually through business surveys.

2. Efforts by other international organizations for revising international recommendations

38. Eurostat first published the methodological handbook on short-term business statistics in 1997 and revised it in 2002.

39. The Statistical Working Party of the Committee on Industry and Business Environment of OECD was originally created for the development of industry-level statistics and indicators. This function has evolved over time and the Working Party currently focuses on the development of internationally comparable quantitative

analysis in three key areas: productivity, firm performance, and globalization. This focus on analysis has given the Statistics Directorate a more important role relating to small and medium-size enterprises and entrepreneurship statistics. The Statistics Directorate held its first structural business statistics expert meeting in November 2005 to review this expanded mandate.[2] Other statistical groups in OECD are addressing issues related to innovation, the information technology industry and biotechnology.

V. Recommendations

40. **The programme review on industrial statistics has provided a broad overview of the industrial statistical system, highlighting its current practices, progress and challenges. Its recommendations address both the national statistical agencies and international organizations.**

A. Recommendations for national statistical agencies

41. **In order to develop internationally comparable industrial statistics, national statistical agencies need:**

(a) **To eliminate as much as possible the lack of data submitted to international organizations through the development of their own statistical systems;**

(b) **To make an effort to provide their data to international organizations as soon as possible;**

(c) **To work towards providing internationally comparable data that complies with international methodological standards and definitions, such as the international standard industrial classification ISIC, Rev.3, or its upcoming revision, ISIC, Rev.4.**

B. Recommendations for international organizations

1. Data collection standards

42. **In order to measure new phenomena in industrial production, such as emerging industries, outsourcing, changes in quality and the environmental impact of industry, the existing international recommendations on industrial statistics must be revised. While undertaking these revisions of manuals and handbooks, consistency with the 1993 SNA and its forthcoming revision and other international guidelines and manuals should be ensured. Consequently, the Statistics Division, its international partners and member countries should coordinate their efforts:**

(a) **To revise existing United Nations recommendations related to industrial statistics and produce new recommendations or manuals with new methodologies in response to new demands as soon as possible;**

(b) **To study the revision of the recommendations on industrial statistics in order to expand the scope of the recommendations and develop an integrated**

economic statistics programme, on an integrated basis and taking into consideration all economic activities, including services;

(c) To review the international standards and recommendations regarding industrial statistics, including ISIC, at suitable intervals.

2. Data dissemination standards

43. **Significant in-house efforts are made by international agencies in converting existing industrial statistics databases to more user-friendly platforms. However, users of economic statistics would benefit further from the creation of a single portal that provides access to the various international databases. Therefore, it is recommended that international agencies formulate and implement a coordinated work programme on data dissemination with the objective of creating a single portal for economic statistics, including industrial statistics, that provides access to unified international databases.**

3. Training and capacity-building

44. **The present international capacity to provide training and capacity-building in industrial statistics to developing countries is limited and scattered. Therefore, it is recommended that international agencies strengthen their efforts and coordination in rendering technical assistance to developing countries in the area of economic statistics, including industrial statistics.**

4. International coordination

45. **A need has been identified to create a committee with a mandate to coordinate, develop and implement an integrated economic statistics programme that addresses the proposed recommendations. This committee should consist of high-level experts of countries and international organizations.**

Notes

[1] This programme review on industrial statistics focuses on the manufacturing industry although, conventionally, industrial statistics comprise mining and quarrying, manufacturing, gas, water and electricity and construction, as defined by ISIC, Rev.3.1.

[2] Meeting documents are available at http://www.oecd.org/document/0/0,2340,en_2649_34233_35468864_1_1_1_1,00.html.